

REMARKS

Applicant requests favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 9-15 are presented for consideration in lieu of claims 1-8, which have been canceled without prejudice or disclaimer. Claims 9 and 14 are independent. Support for these claims can be found in the original application, as filed. Therefore, no new matter has been added.

The Examiner required that Figure 3 be labeled as "PRIOR ART." Applicant submits, by separate paper, a replacement sheet for Figure 3, which has been so labeled. Accordingly, Applicant requests withdrawal of the objection to the drawing.

Applicant requests favorable reconsideration and withdrawal of the rejections set forth in the above-noted Office Action.

Claims 1-8 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,786,947 to Kosugi et al. Claims 1, 7 and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,707,529 to Aoki et al. Claims 2-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Aoki et al. patent. Applicant submits that the cited art, whether taken individually or in combination, does not teach or suggest many features of the present invention, as previously recited in claims 1-8. Therefore, these rejections are respectfully traversed. Nevertheless, Applicant submits that claims 9-15, as presented, amplify the distinctions between the present invention and the cited art.

In one aspect of the present invention, independent claim 9 recites an apparatus including a chamber, a cooler, a circulating path, a first path, a second path, a first shut-off valve, and a second shut-off valve. The cooler cools an inert gas to be supplied to the chamber. The inert gas flows through the chamber and the cooler in the circulating path. The first path, connected to the circulating path at a first position downstream of an outlet port of the cooler and upstream of the chamber, introduces air to the circulating path. The second path, connected to the circulating path at a second position downstream of the chamber and upstream of an inlet port of the cooler, exhausts gas in the chamber. The first shut-off valve, arranged in the circulating path upstream of the first position and downstream of the outlet port of the cooler, closes before the introduction of the air. The second shut-off valve, arranged in the circulating path downstream of the second position and upstream of the inlet port of the cooler, closes, to prevent the air from flowing to the cooler.

In another aspect of the present invention, independent claim 14 recites an exposure apparatus for transferring a pattern onto a substrate with exposure light. The apparatus includes a chamber, a cooler, a circulating path, a first path, a second path, a first shut-off valve, and a second shut-off valve. The chamber has a space where the exposure light passes, and the cooler cools an inert gas to be supplied to the chamber. The apparatus includes a circulating path in which the inert gas flows through the chamber and the cooler. The first path, connected to the circulating path at a first position downstream of an outlet port of the cooler and upstream of the chamber, introduces air to the circulating path. The second path, connected to the circulating path at a second position downstream of the chamber and upstream of an inlet port of the cooler,

exhausts gas in the chamber. The first shut-off valve, arranged in the circulating path upstream of the first position and downstream of the outlet port of the cooler, closes before the introduction of the air. The second shut-off valve, arranged in the circulating path downstream of the second position and upstream of the inlet port of the cooler, closes, to prevent the air from flowing to the cooler.

Applicant submits that the cited art does not teach or suggest such features of the present invention as recited in the independent claims.

The Kosugi et al. patent relates to a semiconductor device manufacturing projection exposure apparatus in which a pattern of a reticle is projected onto a semiconductor wafer through a projection optical system having a lens element and in which the reticle is irradiated with a light of a predetermined wave length to thereby transfer the pattern of the reticle onto the semiconductor wafer. The apparatus includes a chamber adapted to house the reticle, the wafer, and the projection optical system in a substantially closed space, detectors for detecting a temperature and a pressure of a gas contained in the space, and an adjusting unit for adjusting the temperature and pressure of the gas in the chamber, from outside of the chamber. The operation of the adjusting unit is controlled on the basis of the detection by the detectors, whereby the temperature and pressure of the gas contained in the space are regulated so as to be best suited to retain a predetermined optical performance of the projection optical system and to assure high-decision pattern transfer.

Applicant submits, however, that the Kosugi et al. does not teach or suggest salient features of Applicant's present invention, as recited in independent claims 9 and 14. Notably, Applicant submits that that patent does not teach or suggest at least the arrangement of the first and second paths and the first and second shut-off valves of the present invention, as recited in those claims. Accordingly, the Kosugi et al. patent should not be read to anticipate or render obvious, Applicant's present invention, as recited in independent claims 9 and 14.

For the reasons noted above, Applicant submits that the Kosugi et al. patent does not teach or suggest many features of the present invention, as recited in the independent claims. Applicant further submits that the remaining art cited does not cure the deficiencies noted above with respect to the Kosugi patent.

The Aoki et al. patent relates to an exposure apparatus having an illumination system which applies an exposure energy beam to a mask on which a pattern for transfer is formed, and a stage system for positioning a substrate to which the pattern of the mask is transferred. A gas supply apparatus supplies a gas of high transmittivity with respect to the exposure energy beam, and has good thermal conductivity, to at least a portion of an optical path of the exposure energy beam. The apparatus also includes a gas recovery apparatus for recovering at least a portion of the gas after the gas is supplied to the optical path of the exposure energy beam from the gas supply apparatus.

Applicant submits, however, that the Aoki et al. patent, as with the Kosugi et al. patent, does not teach or suggest the arrangements of the first and second paths and the first and second shut-off valves of the present invention, as recited in independent claims 9 and 14. Applicant submits, therefore, that the Aoki et al. patent adds nothing to the teachings of the Kosugi et al. patent that would render obvious, Applicant's present invention, as recited in independent claims 9 and 14.

For the foregoing reasons, Applicant submits that the present invention, as recited in independent claims 9 and 14, is patentably defined over the cited art, whether that art is taken individually or in combination.

Dependent claims 10-13 and 15 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in independent claims 9 and 14. Individual consideration of these dependent claims is requested.

Applicant further submits that the instant application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action and an early Notice of Allowance are requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010 All correspondence should continue to be directed to our address given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Steven E. Warner", is written over a horizontal line.

Attorney for Applicant
Steven E. Warner
Registration No. 33,326

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3800
Facsimile: (212) 218-2200

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